SEQUENCE LISTING

<110> UAB Research Foundation

<120> BRHF1 AS A CANCER DIAGNOSTIC MARKER

<130> 21085.0064P1

<150> 60/550,224
<151> 2004-03-04

<160> 21

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 105
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
Synthetic Construct

<400> 1

```
Met Lys Gly Leu Ser Pro Ile Ala Lys Gly Arg Lys Thr Ser Val Ser
 1               5                  10                  15
Ala Ala Val Leu Val Ser Thr Thr Ile Pro Ile Ser Ser Val Trp Gly
            20                  25                  30
Pro Leu Gln Ile Leu Gly Gln Lys Arg Gly Gln Lys Met Glu Gln Ala
        35                  40                  45
Asn His Pro Val Gly Leu Asp Ile Ser Val Val Tyr Lys Asp Thr Leu
    50                  55                  60
Lys Lys Ile Val Gln Gln Glu Thr Ser Cys Pro Phe Thr His Val His
65                  70                  75                  80
Tyr Ala Glu Gly Ile Thr Gly Arg His Thr Ala Pro Glu Asp Glu Gly
                85                  90                  95
Ser Leu Ala Gln Lys Pro Pro Ile Arg
            100                 105
```

<210> 2
<211> 270
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
Synthetic Construct

<400> 2

```
Met Asn Ile Asp Ala Lys Ile Leu Asn Lys Ile Leu Ala Asn Gln Ile
 1               5                  10                  15
Gln Gln His Ile Lys Lys Leu Ile His His Asp Gln Val Gly Phe Ile
            20                  25                  30
Pro Gly Met Gln Gly Trp Phe Asn Ile His Lys Ser Ile Asn Val Ile
        35                  40                  45
Gln His Ile Asn Arg Thr Lys Asp Lys Asn His Met Ile Ile Ser Val
    50                  55                  60
```

```
Asp Ala Glu Lys Ala Phe Asp Lys Val Gln Gln His Phe Met Leu Lys
65                  70                  75                  80
Thr Leu Asn Lys Leu Gly Ile Asp Gly Thr Tyr Leu Lys Ile Ile Arg
                85                  90                  95
Ala Ile Tyr Asp Lys Pro Thr Ala Asn Ile Ile Leu Asn Gly Leu Lys
            100                 105                 110
Leu Glu Ala Phe Pro Leu Lys Thr Gly Thr Arg Gln Gly Cys Pro Leu
        115                 120                 125
Ser Leu Leu Leu Phe Asn Ile Val Leu Glu Val Leu Ala Arg Ala Ile
    130                 135                 140
Arg Gln Glu Lys Glu Ile Asn Cys Ile Gln Leu Gly Lys Glu Glu Val
145                 150                 155                 160
Lys Leu Pro Leu Phe Ala Asp Asp Met Ile Val Tyr Leu Glu Asn Pro
                165                 170                 175
Val Val Ser Ala Pro Asn Leu Leu Lys Leu Ile Ser Asn Phe Ser Lys
            180                 185                 190
Val Ser Gly Tyr Lys Ile Asn Val Gln Lys Ser Gln Ala Phe Leu Tyr
        195                 200                 205
Thr Asn Asn Arg Gln Thr Glu Ser Gln Ile Met Ser Glu Leu Pro Phe
    210                 215                 220
Thr Ile Ala Ser Lys Arg Ile Lys Tyr Leu Gly Ile Gln Leu Thr Arg
225                 230                 235                 240
Asp Val Lys Asp Leu Phe Lys Glu Asn Tyr Lys Pro Leu Leu Asn Glu
                245                 250                 255
Ile Lys Glu Asp Thr Asn Lys Cys Lys Asn Ile Pro Cys Ser
            260                 265                 270
```

<210> 3
<211> 315
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
Synthetic Construct

<400> 3
atgaagggat tatcgcctat cgccaagggg aggaaaacta gtgtttctgc tgctgtgttg 60
gtgagcacaa ctattccgat cagcagtgtc tggggaccat tgcagattct tgggcaaaag 120
agaggacaga aaatggagca ggccaatcac ccagtggggc ttgatatcag tgtggtttac 180
aaggacacct taaaaaagat tgtccaacaa gaaacaagct gccccttcac ccatgtccac 240
tatgctgagg gaatcactgg aaggcacact gccccagagg atgaaggttc tctggcccag 300
aagccccaa tcaga 315

<210> 4
<211> 810
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
Synthetic Construct

<400> 4
atgaacatcg atgcaaaaat cctcaataaa atactggcaa accaaatcca gcagcacatc 60
aaaaagctta tccaccatga tcaagtgggc ttcatccctg ggatgcaagg ctggttcaac 120
atacacaaat caataaatgt aatccagcat ataaacagaa ccaaagacaa aaaccacatg 180
attatctcag tagatgcaga aaaggccttt gacaaagttc aacaacactt catgctaaaa 240
actctcaata aattaggtat tgatgggacg tatctcaaaa taataagagc tatctatgac 300
aaacccacag ccaatatcat actgaatggg ctaaaactgg aagcattccc tttgaaaact 360

ggcacaagac agggatgccc tctctcactt ctcctattca acatagtgtt ggaagttctg 420
gccagggcaa tcaggcagga gaaggaaata aattgtattc aattaggaaa agaggaagtt 480
aaattgcccc tgtttgcaga tgacatgatt gtatatctgg aaaaccccgt cgtctcagcc 540
ccaaatctcc ttaagctgat aagcaacttc agcaaagtct caggatacaa aatcaacgtg 600
caaaaatcac aagcattctt atacaccaat aacagacaaa cagagagcca aatcatgagt 660
gaactcccat tcacaattgc ttcaaagaga ataaaatacc taggaatcca acttacaagg 720
gatgtgaagg acctcttcaa ggagaactac aaaccactgc tcaacgaaat aaaagaggat 780
acaaacaaat gcaagaacat tccatgctca 810

<210> 5
<211> 1263
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
Synthetic Construct

<400> 5
catctacaga actctccacc ccaaatcaac agaatataca ttttttttcag caccacacca 60
cacctattcc aaaattgacc acatagttgg aagtaaagct ctcctcagca aatgtaaaag 120
aacagaaatt ataacaaact atctctcaga ccacagtgca atcaaactag aactcaggat 180
taagaatctc actcaaagcc gctcaactac atggaaactg aacaacctgc tcctgaatga 240
ctactgggta cataacgaaa tgaaggcaga aataaagatg ttctttgaaa ccaacgagaa 300
caaagacacc acataccaga atctctggga cgcattcaaa gcagtgtgta gagggaaatt 360
tatagcacta aatgcctacc agagaaagca ggaaagatcc aaaattgaca ccctaacatc 420
acaattaaaa gaactagaaa agcaagagca aacacattca aaagctagca gaaggcaaga 480
aataactaaa atcagagcag aactgaagga aatagagaca caaaaaaccc ttcaaaaaat 540
caatgaatcc aggagctggt tttttgaaag gatcaacaaa attgatagac cgctagcaag 600
actaataaag aaaaaaagag agaagaatca aatagacaca ataaaaaatg ataaagggga 660
tatcaccacc gatcccacag aaatacaaac taccatcaga gaatactaca aacacctcta 720
cgcaaataaa ctagaaaatc tggaagaaat ggatacattc ctcgacacat acactctccc 780
aagactaaac caggaagaag ttgaatctct gaatcgacca ataacaggct ctgaaattgt 840
ggcaataatc aatagtttac caaccaaaaa gagtccagga ccagatggat tcacagccga 900
attctaccag aggtacaagg aggaactggt accattcctt ctgaaactat tccaatcaat 960
agaaaaagag ggaatcctcc ctaactcatt ttatgagacc agcatcattc tgataccaaa 1020
gccgggcaga gacacaacca aaaaagagaa ttttagacca atatccttga tgaacattga 1080
tgcaaaaatc ctcaataaaa tactggcaaa ccgaatccag cagcacatca aaaagcttat 1140
ccaccatgat caagtgggct tcatccctgg gatgcaaggc tggttcaata tacgcaaatc 1200
aataaatgta atccagcata taaacagagc caaagacaaa aaccacatga ttatctcaat 1260
aga 1263

<210> 6
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
Synthetic Construct

<400> 6
cagagcctgt 10

<210> 7
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =

Synthetic Construct

<400> 7.
ctctgggaca 10

<210> 8
<211> 375
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
Synthetic Construct

<400> 8

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Met | Lys | Gly | Leu | Ser | Pro | Ile | Ala | Lys | Gly | Arg | Lys | Thr | Ser | Val | Ser |
| 1 | | | | 5 | | | | 10 | | | | | | 15 | |
| Ala | Ala | Val | Leu | Val | Ser | Thr | Thr | Ile | Pro | Ile | Ser | Ser | Val | Trp | Gly |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Pro | Leu | Gln | Ile | Leu | Gly | Gln | Lys | Arg | Gly | Gln | Lys | Met | Glu | Gln | Ala |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Asn | His | Pro | Val | Gly | Leu | Asp | Ile | Ser | Val | Val | Tyr | Lys | Asp | Thr | Leu |
| | 50 | | | | | 55 | | | | | 60 | | | | |
| Lys | Lys | Ile | Val | Gln | Gln | Glu | Thr | Ser | Cys | Pro | Phe | Thr | His | Val | His |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Tyr | Ala | Glu | Gly | Ile | Thr | Gly | Arg | His | Thr | Ala | Pro | Glu | Asp | Glu | Gly |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Ser | Leu | Ala | Gln | Lys | Pro | Pro | Ile | Arg | Met | Asn | Ile | Asp | Ala | Lys | Ile |
| | | | 100 | | | | | 105 | | | | | 110 | | |
| Leu | Asn | Lys | Ile | Leu | Ala | Asn | Gln | Ile | Gln | Gln | His | Ile | Lys | Lys | Leu |
| | | 115 | | | | | 120 | | | | | 125 | | | |
| Ile | His | His | Asp | Gln | Val | Gly | Phe | Ile | Pro | Gly | Met | Gln | Gly | Trp | Phe |
| | 130 | | | | | 135 | | | | | 140 | | | | |
| Asn | Ile | His | Lys | Ser | Ile | Asn | Val | Ile | Gln | His | Ile | Asn | Arg | Thr | Lys |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Asp | Lys | Asn | His | Met | Ile | Ile | Ser | Val | Asp | Ala | Glu | Lys | Ala | Phe | Asp |
| | | | | 165 | | | | | 170 | | | | | 175 | |
| Lys | Val | Gln | Gln | His | Phe | Met | Leu | Lys | Thr | Leu | Asn | Lys | Leu | Gly | Ile |
| | | | 180 | | | | | 185 | | | | | 190 | | |
| Asp | Gly | Thr | Tyr | Leu | Lys | Ile | Ile | Arg | Ala | Ile | Tyr | Asp | Lys | Pro | Thr |
| | | 195 | | | | | 200 | | | | | 205 | | | |
| Ala | Asn | Ile | Ile | Leu | Asn | Gly | Leu | Lys | Leu | Glu | Ala | Phe | Pro | Leu | Lys |
| | 210 | | | | | 215 | | | | | 220 | | | | |
| Thr | Gly | Thr | Arg | Gln | Gly | Cys | Pro | Leu | Ser | Leu | Leu | Leu | Phe | Asn | Ile |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 |
| Val | Leu | Glu | Val | Leu | Ala | Arg | Ala | Ile | Arg | Gln | Glu | Lys | Glu | Ile | Asn |
| | | | | 245 | | | | | 250 | | | | | 255 | |
| Cys | Ile | Gln | Leu | Gly | Lys | Glu | Glu | Val | Lys | Leu | Pro | Leu | Phe | Ala | Asp |
| | | | 260 | | | | | 265 | | | | | 270 | | |
| Asp | Met | Ile | Val | Tyr | Leu | Glu | Asn | Pro | Val | Val | Ser | Ala | Pro | Asn | Leu |
| | | 275 | | | | | 280 | | | | | 285 | | | |
| Leu | Lys | Leu | Ile | Ser | Asn | Phe | Ser | Lys | Val | Ser | Gly | Tyr | Lys | Ile | Asn |
| | 290 | | | | | 295 | | | | | 300 | | | | |
| Val | Gln | Lys | Ser | Gln | Ala | Phe | Leu | Tyr | Thr | Asn | Asn | Arg | Gln | Thr | Glu |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 |
| Ser | Gln | Ile | Met | Ser | Glu | Leu | Pro | Phe | Thr | Ile | Ala | Ser | Lys | Arg | Ile |
| | | | | 325 | | | | | 330 | | | | | 335 | |
| Lys | Tyr | Leu | Gly | Ile | Gln | Leu | Thr | Arg | Asp | Val | Lys | Asp | Leu | Phe | Lys |
| | | | 340 | | | | | 345 | | | | | 350 | | |
| Glu | Asn | Tyr | Lys | Pro | Leu | Leu | Asn | Glu | Ile | Lys | Glu | Asp | Thr | Asn | Lys |
| | | 355 | | | | | 360 | | | | | 365 | | | |

Cys Lys Asn Ile Pro Cys Ser
370 375

<210> 9
<211> 1125
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
Synthetic Construct

<400> 9
atgaagggat tatcgcctat cgccaagggg aggaaaacta gtgtttctgc tgctgtgttg 60
gtgagcacaa ctattccgat cagcagtgtc tggggaccat tgcagattct tgggcaaaag 120
agaggacaga aaatggagca ggccaatcac ccagtggggc ttgatatcag tgtggtttac 180
aaggacacct taaaaaagat tgtccaacaa gaaacaagct gccccttcac ccatgtccac 240
tatgctgagg gaatcactgg aaggcacact gccccagagg atgaaggttc tctggcccag 300
aagccccaa tcagaatgaa catcgatgca aaaatcctca ataaaatact ggcaaaccaa 360
atccagcagc acatcaaaaa gcttatccac catgatcaag tgggcttcat ccctgggatg 420
caaggctggt tcaacataca caaatcaata aatgtaatcc agcatataaa cagaaccaaa 480
gacaaaaacc acatgattat ctcagtagat gcagaaaagg cctttgacaa agttcaacaa 540
cacttcatgc taaaaactct caataaatta ggtattgatg ggacgtatct caaaataata 600
agagctatct atgacaaacc cacagccaat atcatactga atgggctaaa actggaagca 660
ttccctttga aaactggcac aagacaggga tgccctctct cacttctcct attcaacata 720

gtgttggaag ttctggccag ggcaatcagg caggagaagg aaataaattg tattcaatta 780
ggaaaagagg aagttaaatt gcccctgttt gcagatgaca tgattgtata tctggaaaac 840
cccgtcgtct cagccccaaa tctccttaag ctgataagca acttcagcaa agtctcagga 900
tacaaaatca acgtgcaaaa atcacaagca ttcttataca ccaataacag acaaacagag 960
agccaaatca tgagtgaact cccattcaca attgcttcaa agagaataaa atacctagga 1020
atccaactta caagggatgt gaaggacctc ttcaaggaga actacaaacc actgctcaac 1080
gaaataaaag aggatacaaa caaatgcaag aacattccat gctca 1125

<210> 10
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
Synthetic Construct

<400> 10
tgagcacaac tattccgatc 20

<210> 11
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
Synthetic Construct

<400> 11
aagcaacttc agcaaagtct cag 23

<210> 12
<211> 21

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
Synthetic Construct

<400> 12
aaaccactgc tcaacgaaat a 21

<210> 13
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
Synthetic Construct

<400> 13
aagggattat cgcctatcgc c 21

<210> 14
<211> 10
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
Synthetic Construct

<400> 14
ccgcatctac 10

<210> 15
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence; note =
synthetic construct

<400> 15
actcgtgttg ataaggctag 20

<210> 16
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
synthetic construct

<400> 16
ttcgttgaag tcgtttcaga gtc 23

<210> 17
<211> 20
<212> DNA

<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
synthetic construct

<400> 17
ctcgtgttga taaggctagt 20

<210> 18
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
synthetic construct

<400> 18
tcgtgttgat aaggctagtc 20

<210> 19
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
synthetic construct

<400> 19
cgtgttgata aggctagtcg 20

<210> 20
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
synthetic construct

<400> 20
tcgttgaagt cgtttcagag tcc 23

<210> 21
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:/note =
synthetic construct

<400> 21
gttgaagtcg tttcagagtc ct 22